

Application No.: 10/690,463

Docket No.: JCLA12280

REMARKS**Present Status of the Application**

The title and the drawings are objected to. The Office Action rejected all presently-pending claims 1-13. Specifically, the Office Action rejected claims 1-13 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Office Action also rejected claims 1-13 under 35 U.S.C. 103(a) as being unpatentable over Eikyu (U.S. 6,576,965) in view of Shiau (U.S. 2003/0155600). Applicant has amended the title and the drawings to overcome the objections. Applicant has also amended claims 1-2, 4-5, 7, 9-10, 12 to overcome the rejections. After entry of the foregoing amendments, claims 1-13 remain pending in the present application, and reconsideration of those claims is respectfully requested.

Discussion of Office Action Objections and Rejections

A new title of "MULTI-FINGER TRANSISTOR HAVING SPECIAL DRIFT REGION" is provided that is clearly indicative of the invention to which the claims are directed.

Applicants respectfully traverse the 112 rejection of claims 1-13 because claims 1, 9 have been amended and the limitations therein are definite clearly. The limitations added in claims 1, 9 are described in paragraphs [0017], [0018] and no new matter is entered.

In addition, the drawings were objected under 37 CFR 1.83(a) because the drawings do not show every feature of the invention specified in the claims. In response thereto, applicant has

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amended claims 1, 2, 4, 9, and has also added the reference number 10, 12 in the Fig. 2 (A) and paragraph [0018]. Every feature in the amended Claims 1, 2, 4, 9 and 10 is shown in the drawings and no new matter is entered.

Applicants respectfully traverse the rejection of claims 1-13 under 103(a) as being unpatentable over Eikyu (U.S. 6,576,965) in view of Shiau (U.S. 2003/0155600) because a prima facie case of obviousness has not been established by the Office Action.

To establish a prima facie case of obviousness under 35 U.S.C. 103(a), each of three requirements must be met. First, the reference or references, taken alone or combined, must teach or suggest each and every element in the claims. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skilled in the art, to combine the references in a manner resulting in the claimed invention. Third, a reasonable expectation of success must exist. Moreover, each of the three requirements must "be found in the prior art, and not be based on applicant's disclosure." See M.P.E.P. 2143, 8th ed., February 2003.

The present invention is in general related a multi-finger transistor as claims 1 and 9 recite:

Claim 1. A multi-finger transistor, comprising:
a plurality of parallel gates on a substrate;
a gate dielectric layer between the gates and the substrate;
a plurality of source/drain regions, each source/drain region is formed in the substrate beside each gate, wherein a region in the substrate under each gate is a channel region; and
a plurality of drift region, each drift region is formed in the substrate between each channel region and each source/drain region, wherein
the drift regions in the central section of the multi-finger transistor surround the corresponding source/drain regions, and a width from a side boundary of the source/drain region to the boundary of the drift region along a direction parallel to the gate increases

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stepwise from the edge sections of the multi-finger transistor toward the central section of the multi-finger transistor.

Claim 9. A multi-finger transistor, comprising:

a plurality of parallel gates on a substrate, wherein the substrate further has a pick-up region thereon;

a gate dielectric layer between the gates and the substrate;

a plurality of source/drain regions, each source/drain region is formed in the substrate beside each gate, wherein a region in the substrate under each gate is a channel region; and

a plurality of drift region, each drift region is formed in the substrate between each channel region and each source/drain region, wherein

the drift regions in the central section of the multi-finger transistor surround the corresponding source/drain regions, and a width from a side boundary of the source/drain region to the boundary of the drift region along a direction parallel to the gate increases with an increase in a distance between each gate and the pick-up region.

Eikyu fails to teach or suggest that the drift regions in the central section of the multi-finger transistor surround the corresponding source/drain regions, and a width from a side boundary of the source/drain region to the boundary of the drift region along a direction parallel to the gate increases stepwise from the edge sections of the multi-finger transistor toward the central section of the multi-finger transistor as recites in claim 1. Eikyu fails to teach or suggest that the drift regions in the central section of the multi-finger transistor surround the corresponding source/drain regions and a width from a side boundary of the source/drain region to the boundary of the drift region along a direction parallel to the gate increases with an increase in a distance between each gate and the pick-up region recites in claim 9. In Eikyu's reference, the LDD 7, 8 (Fig. 9) is formed beside the gate 5. Eikyu does not disclose the LDD region 7, 8 surrounds the source and drain regions. In addition, Eikyu discloses the transistor has a gate, a source/drain region and a LDD. Eikyu does not disclose the transistor has a plurality of gates, a plurality of source/ drain regions and a plurality of drift regions, wherein a width from a side

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boundary of the source/drain region to the boundary of the drift region along a direction parallel to the gate increases stepwise from the edge sections toward the central section of the transistor. Eikyu does not disclose the transistor has a plurality of gates, a plurality of source/ drain regions and a plurality of drift regions, wherein a width from a side boundary of the source/drain region to the boundary of the drift region along a direction parallel to the gate increases with an increase in a distance between each gate and the pick-up region.

In Shiau's reference, the MOS transistor having a plurality of gates, source and drain regions is disclosed, as shown in Figs. 3a, 4a. However, Shiau fails to teach or suggest that the MOS transistor further comprises a plurality of drift regions, wherein the drift regions in the central section of the transistor surround the corresponding source/drain regions. Shiau also fails to teach or suggest that a width from a side boundary of the source/drain region to the boundary of the drift region along a direction parallel to the gate increases stepwise from the edge sections toward the central section of the transistor. Shiau also fails to teach or suggest that a width from a side boundary of the source/drain region to the boundary of the drift region along a direction parallel to the gate increases with an increase in a distance between each gate and the pick-up region.

Therefore, Shiau cannot cure the deficiencies of Eikyu. Independent claims 1 and 9 are patentable over Eikyu and Shiau, and should be allowed. For at least the same reasons, dependent claims 2-8, 10-13 patently define over the prior art as well.

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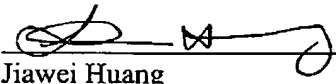
CONCLUSION

For at least the foregoing reasons, it is believed that the pending claims 1-13 are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

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Annotated Marked-up drawing

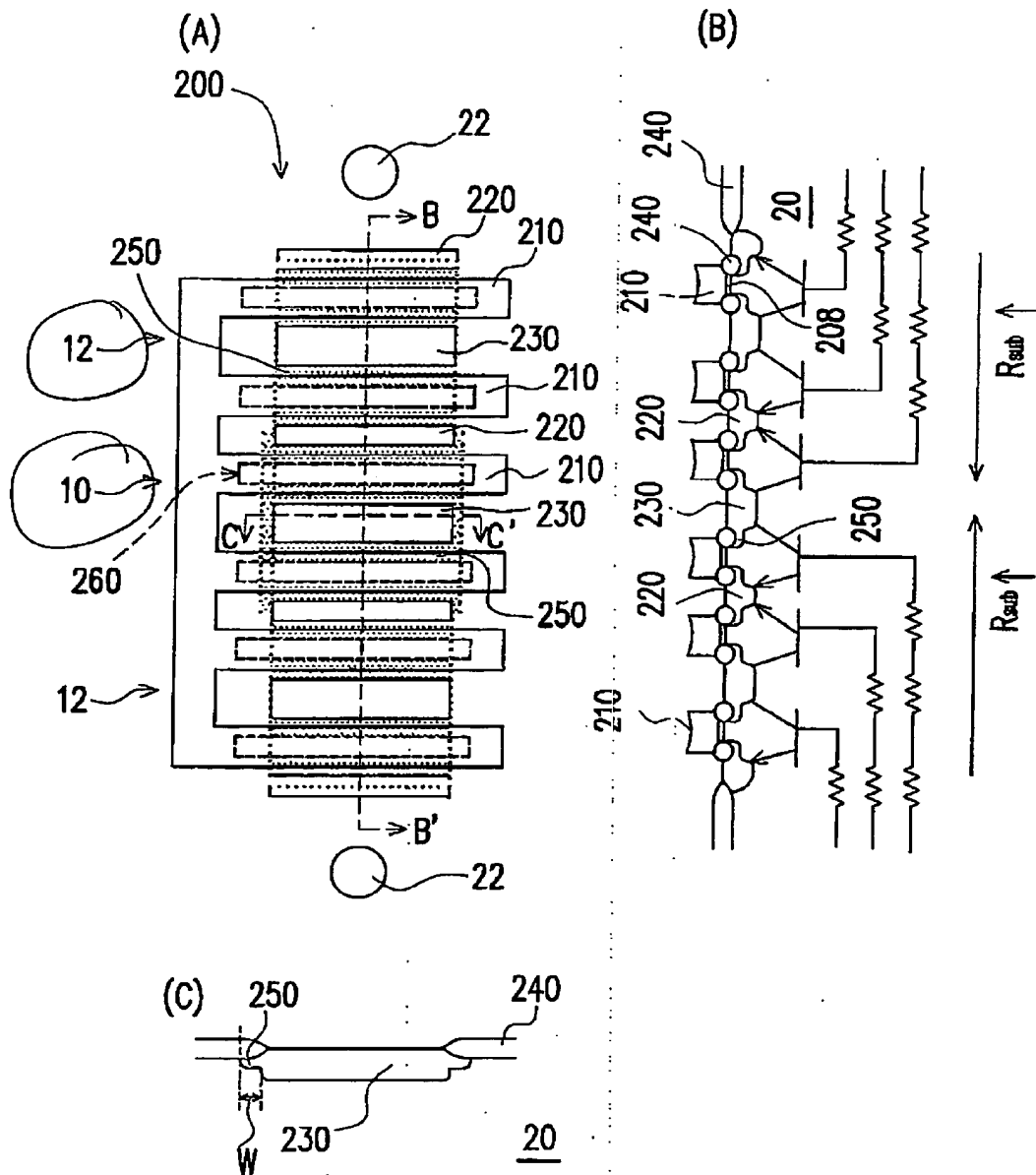


FIG. 2